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ACQUISITION RESEARCH WORKING PAPER SERIES

Using Metrics to Manage Contractor Performance

30 September 2004

by

**R. Marshall Engelbeck, Lecturer in Acquisition, Graduate
School of Business & Public Policy**

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Abstract

Acquisition transformation has brought numerous changes to the way the Department of Defense (DoD) purchases goods and services, as well as to the way it manages the contractor's performance after contract award. One of the most significant changes has been the emphasis on the use of commercial goods and services coupled with the use of performance-based contracts to satisfy mission-critical needs.

As the performance of contractors has become more critical to the mission, there has been a significant reduction in the number of acquisition personnel available to perform what traditionally has been referred to as "contract administration tasks." In addition, with the increase in the amount of services contracts, there has been a change in the skills needed to manage contracts after award.

Contract administration is currently undergoing a paradigm shift because of changes to what the DoD buys and to how purchases are being made. The move to minimize the importance of detailed specifications and to rely on commercial processes requires more management than administrative skills. The bottom line is that new methods and skills must be explored and developed to more effectively perform what traditionally has been referred to as "contract administration."

This study, which addresses contracts at the micro level, concludes the Government Performance and Results Act (GPRA) of 1993 represents a viable framework by which contracts should be structured, as well as managed. The Act requires managers in the Executive Branch to develop strategic plans and use performance indicators to measure output and to evaluate the outcome of the contract, as well as the contractor's performance.

The study also recommends Kaplan and Norton's Balanced Scorecard method of performance measurement, together with Contractor Performance Information (Past Performance Reporting) requirements, can be adapted to the management of contracts. Past Performance reporting and tracking requirements define—in general terms—the



buyer's perspective of what is expected from the contractor. The Balanced Scorecard methodology enables managers to then identify the critical success factors and critical measures for each expatiation. Both parties will benefit by jointly managing these indicators concurrently throughout the life of the contract, rather than reacting to after-the-fact reporting. The goal of such requirements is to add joint accountability for results to the buyer-seller relationship.



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About the Author

R. Marshall Engelbeck, Lecturer, Naval Postgraduate School

Marshall Engelbeck joined the faculty of the Graduate School of Business and Public Policy, Naval Postgraduate School in March 2002. Prior to that, he retired from the Air Force as a Colonel with twenty-eight years of active service. Key military assignments include (in chronological order) Chief of Supply 366th Tactical Fighter Wing, Military Assistance Advisory Group (MAAG) in Taiwan, Chief Programs Division Military Attaché Office Republic of Vietnam, Commander Tinker Air Force Base, Director of Maintenance at Oklahoma City Air Logistics Center, Commander Air Logistics Command's Logistics Support Group in Saudi Arabia and Vice Commander Air Force Contract Management Division (AFCMD). AFCMD was responsible for the administration of DoD and NASA contracts performed at 18 of the nation's largest aerospace facilities.

After retirement, Marshall spent ten years as a Senior Contracts and Proposal Manager with the Defense Communications Division of Rockwell-Collins in Richardson, Texas. During this time, he also taught Management of Government Contracts and Strategic Contracting at the Graduate School of Management, University of Dallas in Irving, Texas.

Marshall was a Distinguished Military Graduate from the State University of Iowa where he earned a B.S.C. degree in General Business. He also has a M.S. degree in Logistics Management from the Air Force Institute of Technology. In addition, he attended both the Industrial College of the Armed Forces and Armed Forces Staff College.

He authored, "Beyond the Red Tape: Uncle Sam Has Deep, but Tight Pockets," *Dallas Magazine* (April 1986), "Weapon System Warranties: Are We Creating a Monster?" *Contract Management* (March 1988), "For the Proactive Contract Manager the Future is Now!" *Contract Management* (January 1998); likewise, the textbook *Acquisition Management* was published in October 2001.



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Introduction

Acquisition transformation has brought numerous changes to the way the Department of Defense (DoD) purchases goods and services, as well as to the way it manages the contractor's performance after contract award. One of the most significant changes has been the emphasis on the use of commercial goods and services coupled with the use of performance-based contracts to satisfy mission-critical needs.

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The Primary Research Question

The primary research question is: can performance measurement be used to manage a contractor's performance after contract award? This question is raised in response to a widespread concern regarding the effectiveness of management techniques used by the federal government to manage contractor performance after contract award. In addition, acquisition reform has placed increased emphasis on the use of commercial products and services, including the use of performance-based contracting to satisfy mission-critical needs. These factors, coupled with significant reductions in size and skill level of the acquisition workforce, mean new methods must be explored to perform what have traditionally been called the "contract administration functions."

The following criteria guided this study and its answer to the primary research question:

- The performance measurement process must be compatible with the overall management planning and control process of the federal government.
- The performance measurement process must also be compatible with what the agency buys and the way it buys it.
- The performance measurement process must add value to the buyer-seller relationship.
- To be selected, the performance measurement process must be subject to cost - benefit trade-off analysis.

Scope of the Research

This research will concentrate on the federal acquisition process. More specifically, it will be centered on the contractor's performance after contract award and how the government fulfills its oversight responsibilities after contract award. It will not address measuring the effectiveness or efficiency of Government contracting organizations at the macro level.



THE THEME



"If you always do what you always did, you always get what you always got!"

Congressman Jim Nessle*

Dick Arme, *Arme's Axioms*, John Wiley & Sons, Inc Hoboken, N.J., 2003, p 251.

Figure 1. Theme¹

Foundation and Framework for How the Federal Government Should Do Business Every Day

The idea of integrating performance into the federal budget process is not new. Since the Hoover Commission proposed “performance budgeting” in 1949, there has been continued interest on the part of the Legislative Branch in measuring the results achieved in the past and linking them to future budgets. (See Figure 1.) The Planning, Programming, and Budgeting System (PPBS) introduced in the 1960’s, and the Zero-Based Budgeting System employed during the Carter Administration are just two examples of structures which tried to correlate program objectives both to results and to the means of achieving program goals.²

A more recent example of a governmental attempt to determine how effective an agency is in managing its programs is the Government Performance and Results Act

¹ Dick Arme, *Arme's Axioms* (Hoboken, NJ: John Wiley & Sons), 251.

² James J. Cavanagh, et al., “The Balanced Scorecard for Managing Procurement Performance,” *Contract Management*, (February 1999): 13.



(GPRA) of 1993. GPRA requires departments and agencies to have long-range strategic plans, develop measurable outcomes and to report results achieved annually for each program in their budgets. Previously, managers concentrated on administrating the processes and reporting how well they were functioning rather than on being concerned if the output satisfied the goals upon which the program was based.³

The bottom line for most government agencies is their mission: what they want to achieve. Under GPRA, what the agency wants to achieve is expressed in its strategic plans. These plans also include performance indicators to be used to measure the outputs and evaluate the outcomes of each program. The primary goals of GPRA are to ensure strategic planning drives budgeting and that resource decisions reflect specific strategic priorities, not just any “firestorm” that occurs.⁴

David M. Walker, comptroller general of the United States, writing in *The Public Manager*, emphasized the importance of the management concept contained in GRPA to how supervisors in the public sector should manage. He asserts, “GPRA provides the foundation and framework for how the federal government does business every day.”⁵

The key to strategic success under this act is an understanding of the elements of the GPRA framework and their interrelationships.

- The congressional budget includes a strategic performance plan that defines what major programs the agency intends to accomplish.
- Strategic performance plans are designed to establish a “bottom line” to which each government program can be held accountable.
- Activities are actions and tasks performed within the organization to produce outputs (goods or services).

³ Thomas G. Kessler and Patricia Kelly, *The Business of Government: Strategy, Implementation and Results, Management Concepts*, (Vienna, VA: Management Concepts, 2000), 50.

⁴ James B. Whittaker, *President’s Management Agenda, A Balanced Scorecard Approach*, (Vienna, VA: Management Concepts, 2003), 1.

⁵ David Walker, “Managing By Results to Benefit Our Citizens.” *The Public Manager*



- Performance indicators are particular values or characteristics that are used to measure outputs and/or outcomes. They include such factors as timeliness, quality, product integrity, customer satisfactions, and quantity.
- Output is the goods or services produced by a program.
- Outcomes are the things that occur as a result of output when the customer receives and uses the goods or services produced.⁶ (See Figure 2.)

GPRA Performance Accountability Framework

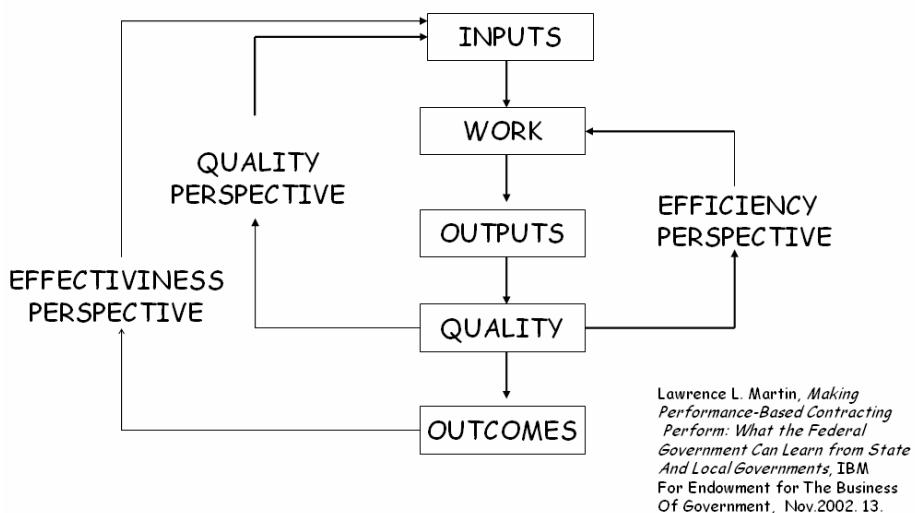


Figure 2. The GPRA Performance Accountability Framework⁷

The National Partnership for Reinventing Government (National Performance Review), which was established to make government run more efficiently and effectively, continued the GPRA theme. This was followed by three other pieces of legislation that required strategic plans to describe how each government agency will deliver quality results and then measure its performance in terms of output and outcomes. These pieces of legislation were the Federal Acquisition Streamlining Act of

⁶ Kessler and Kelly, 56-61.

⁷ Lawrence L. Martin, *Making Performance-Based Contracting Perform: What the Federal Government Can Learn from State and Local Governments*, New Ways to Manage Series (Arlington, VA: IBM Center for Endowment for the Business of Government, Nov. 2002), 13.



1994, the Government Management Reform Act of 1994 and the Information Technology Management Reform Act of 1996 (Clinger-Cohen Act).

Some agencies and departments have also adapted Kaplan and Norton's balanced scorecard approach and are using balanced performance measures to evaluate performance of their organization as a whole. As the name implies, the balanced scorecard does not concentrate on just measuring financial performance. It is multidimensional and includes the customer's perspective, internal processes' perspective, and learning and growth as measurements of the financial perspective in order to obtain some balance of these categories in relation to mission achievement. This approach allows managers to consider whether improvements in one area are being achieved at the expense of another. Examples of the use of the balanced scorecard by public organizations include Naval Undersea Warfare Center, FAA Logistics Center, Internal Revenue Service, and the Department of Transportation.⁸

The Federal Acquisition Regulations Guide to Acquisition of Goods and Services

It is the Federal Acquisition Regulations (FAR) that provides the foundation to guide the acquisition of goods and services procured by the Executive Branch. The FAR includes a strategic planning perspective in the form of a "primary vision" for the federal acquisition system. The vision statement dictates: the primary goal of the acquisition system is to "deliver on a timely basis a best value product or service to the customer, while maintaining the public trust and fulfilling public policy objectives." (See Figure 3.)

The FAR goes on to enumerate four major critical success factors by which the process should be evaluated. These are,

- Customer satisfaction of cost, quality, and timeliness

⁸ Whittaker, 249-257.



- Minimization of administrative cost
- Maintenance of the public trust, and
- Fulfillment of public policy objectives.⁹

Acquisition Vision and Performance Standards

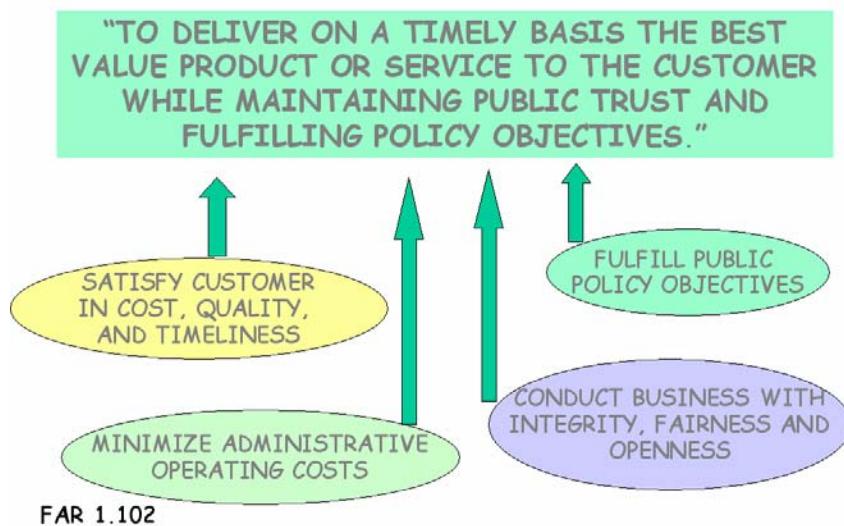


Figure 3. Acquisition Vision and Performance Standards

Each of these critical success factors lends itself to the establishment of performance indicators which measure the output and outcome as they are presented in the GPRA framework.

For defense weapons systems, Department of Defense 5000 (DoD 5000) series directives govern all acquisition programs. Important to the management of each defense program is the Acquisition Program Baseline (APB). The APB serves as a critical success indicator because the baseline also represents desired results in measurable terms. Every Program Manager (PM) is required to:



establish program goals for a minimum number of cost, schedule and performance parameters that describe the program over its life cycle. Approved program baseline parameters shall serve as control objectives. PM shall identify deviation from approved program baseline parameters and exit criteria.¹⁰

In addition to ABP data, DoD Instruction 5000.2 contains references to fifty pieces of information required by the statutes or regulations that may be applicable during product development milestones and phases. This regulatory program information is to be tailored to fit the particular conditions of each individual program. This program includes a Contractor Cost Data Report, which is required for non-commercial contracts not procured under competitive procedures that include information on major contracts and subcontracts for Acquisition Category I Programs over \$50 million and high-risk or high-technical interest contracts between \$7 and \$50 M.¹¹

Changing What We Buy and the Way We Buy It

In FY 2002, the Federal Government continued its long-standing record as the largest buyer of goods and services in the world. In that year, contract actions exceeded \$250.2 billion. Department of Defense (DoD) contracts represented 66% of that total—e.g., \$164.7 billion.

In the last ten years, there have been significant increases in the quantity of commercial items purchased by the DoD. Primary reasons for this were: (a) the fact that more and more innovative products are available commercially-off-the-shelf (COTS) that would satisfy government requirements; (b) Federal Acquisition Streamlining Act (FASA) has simplified procedures for procurement of low-cost, low-risk commercial supplies and services; and (c) military specifications and standards are replaced by performance standards or commercial standards when possible. Consequently, FAR

⁹ Federal Acquisition Regulation (FAR) 1.102

¹⁰ Defense Acquisition System, DoD Directive 5000.1, 4.3.4 Discipline, May 12, 2003.

¹¹ Statutory, Regulatory, and Contract Reporting Information and Milestone Requirements, May 12, 2003, Enclosure 3, DoD Instruction 5000.2.



policy now requires the contracting officer of each acquisition to initially look to the commercial market as a source for goods and services.¹²

The dollar value of purchases for services now exceeds what is spent for supplies and equipment. In 2003, in particular, the General Accounting Office (GAO) stated during the last five years DoD spent more to procure services than it did for supplies and equipment. In fact, approximately 50% of DoD's spending in 2002 was for services. Between 1999 and 2002, spending for services increased approximately 19% to \$93 billion.¹³ During this same period, the number of contractors grew by over 727,000, while the civil service workforce decreased.¹⁴

Part of this trend has been due to the fact that over the past few years, policy has emphasized consideration of private-sector firms as alternative service providers of tasks that can be classified as being inherently commercial. The Federal Activities Inventory Reform Act (FAIR Act) calls for the head of each agency to decide which activity would be subject to competition under the provisions of OMB Circular A-76.¹⁵

Two examples of activities that have been contracted out to the private sector have been facility maintenance and personnel support services at military installations and bases. Information technology is another area considered to be commercial in nature and, therefore, subject to competitive sourcing.

¹² Federal Acquisition Regulation (FAR) 10.002

¹³ *Contract Management: High-Level Attention Needed to Transform DoD Services Acquisition*, GAO Report. September 03, GAO-03-935.

¹⁴ Jason Peckenpaugh, "Contractor Workload Grows as Civil Service Shrinks," *Government Executive Magazine* (September 4, 2003). In February 2004, the Office of Management and Budget (OMB) revised A-76 to allow federal agencies to compete for this work against non-federal organizations. The competition determines which service provider can supply mission-related support and meet business requirements at the best price without compromise to quality or performance. In its April 12, 2004 edition, the *Federal Times* reported between 1998 and 2003 DoD civilian and acquisition personnel declined 7.5%; likewise, civilian staffing of the Defense Contract Management Agency (DCMA) fell 23.6%

¹⁵ Federal Acquisition Council, "Manager's Guide to Competitive Sourcing," Second Edition, February 20, 2004. Competitive sourcing has been described as a "tool to help you benchmark your organizations against other possible service providers, to stimulate your organization to think of ways to change in order to become the best it can be." And, "It involves conducting public-private reviews or competitions to assess how best to deliver services to the public."



There have been other changes to what the federal government buys and how it purchases those goods and services. Beginning in 1995, acquisition managers have been encouraged to think more creatively and look for innovative ways to procure supplies and services. This paradigm shift was propelled by two significant pieces of legislation which have been discussed previously, FASA and the FARA. Both urged acquisition managers to look for alternative ways of doing business that was cheaper, better, and faster—as long as it made good business sense. The only constraint was that the FAR, Executive Order or agency regulations could not prohibit the particular course of action.¹⁶

Examples of the some of the more significant changes are listed below. Each was brought about by a policy that tolerated thinking-outside-the-box. (See Table 1.)

1. Use of Government Purchase Cards: Government-wide policy has made use of the Purchase Cards as the preferred method of procuring commercial items below the micro-purchase threshold of \$2,500 (\$2,000 for construction). In FY 2003, purchase card usage history showed there were 10.7 million purchase card transactions totaling \$7.2 billion in sales; these sales thereby eliminated a significant workload which previously had been performed by contracting personnel and the management of relatively small-value purchases.
2. Use of e-Commerce: The DoD has further facilitated the purchase of consumable supplies by establishing the DoD EMALL. The DoD EMALL's objective is to be the single electronic point-of-entry for purchasers to locate and acquire off-the-shelf, finished goods and services from the commercial market place as well as from government sources. It creates a paperless environment, thereby simplifying the contracting job.
3. Expanded Use of Federal Supply Schedules: There has been a significant increase in the use of indefinite-delivery, indefinite-quantity (IDIQ) contracts. Use of a Federal Supply Schedule permits contracting officers to initiate individual orders for supplies or services from commercial firms using IDIQ contracts previously established by the General Services Administration (GSA). This system was not previously permitted because the source of contracting authority

¹⁶ Federal Acquisition Regulation (FAR) 1.102d



was outside GSA. Under this method, however, the ordering agency is responsible for determining if contract performance is acceptable and for taking the necessary action if it is not. This method, formerly known as the Federal Supply Schedule Program, accounted for contracts which totaled 7 billion dollars in FY 2002 alone. It has not only simplified the contracting officers' jobs by eliminating the need to participate in the source-selection process, but it has also greatly reduced procurement lead-times.

4. Strategic Purchasing of Commodities: Use of Cross-functional Sourcing Teams' Leverage in Terms of Buying Power by Strategic Source Centralized Purchasing: The services are now looking to optimize their buying power by creating "Commodity Councils." The objective is to develop centralized purchasing strategies for different commodities. IBM, Daimler/Chrysler, and Cessna have successfully used it. Adoption of this concept means the service will enter into enterprise-wide larger volume contracts with fewer suppliers rather than having each user contract for its own needs. This method of acquisition gives the buyer the advantages of leverage. It also eliminates a significant amount of administrative workload at multiple installations.¹⁷
5. Use of Performance-Based Contracting Methods: Performance-based contracts are structured around terms that describe measurable output, quality or outcomes in the form of measurable standards for the work to be performed, rather than broad or precise statements of work regarding the way services are to be performed. This method of procurement emphasizes telling the provider what is wanted rather than how. It also encourages contractor rewards for exceptional performance or fee reduction when performance is not satisfactory. It is DoD policy that 50% of all service contracts be performance-based by 2005. Experience has shown that although additional work is required with this method, initially describing tasks to be performed and quantifying desired outputs and outcomes greatly reduces the contracting officers' involvement after contract award.

¹⁷ For more on this subject see David Burt, Donald Dobler, and Stephen L. Starling, *World Class Supply ManagementSM: The Key to Supply Chain Management*, Seventh Edition (New York: McGraw-Hill, 2003), 328.



Results of Out-Of-The-Box Thinking

- Purchase Card Used for Micro Purchases
 - Purchases < \$2,500
 - Reduced Role of Contracting Officer
- Use Of E-Commerce
 - Single Point of Entry to Commercial Market
- Expanded Use of Federal Supply Schedules
 - Using of Previously Established Contracts
- Strategic Purchasing by Commodities
 - Leverage Buying Power
- Use of Performance Based Contracting Methods
 - 50% of Services Contracts to be PBSC by 2005

Table 1. Results of Thinking-Out-Of-The-Box

As government acquires more and more services via contract, the lead-time from acquisition decision to mission impact has become less and less. Regarding a weapon system, years can pass before the mission impact of a poor decision made during design, production, or provisioning of spare parts can be discovered. In contrast, failure to perform a mission-critical service can have an almost instantaneous negative impact.

This reality requires a re-examination of the relationships between the buyer and seller. Policies initiated during acquisition reform have made it possible to move away from an arms-length buyer-seller relationship in favor of greater communication and even inclusion of the contractor as a member of the Acquisition Team.¹⁸

Contractor Oversight after Contract Award

Reform of federal procurement policy has resulted in increased flexibility for contracting officers, program managers, and other acquisition personnel. Changing times call for innovative ways to achieve results. As noted above, this innovation occurred primarily in the methods by which supplies and services are purchased. In

¹⁸ Federal Acquisition Regulation (FAR) 1.102 (c) “The Acquisition Team consists of all participants [...] including technical, supply, and procurement communities, but also the customers they serve, and the contractors who provide the products and services.”



relation to contracts, the impact of acquisition reform on the function of contract administration has not been fully recognized.¹⁹

After contract award, oversight of the contractor's performance has traditionally been referred to as "contract administration." The objectives of contract administration is to gain assurance that a quality product will be delivered to the ultimate user in accordance with cost and schedule projections, as well as to retain the confidence of the tax payer in proving his/her tax dollars are being spent wisely.

Oversight includes the employment of government personnel for such tasks as monitoring contractor performance, inspecting and accepting delivered products or services, modifying the contract, resolving technical and delivery problems, reviewing contractor's processes, auditing contractor systems, and applying rewards and penalties when needed.²⁰

Professor Steve Kelman, former head of the Office of Federal Procurement Policy (OFPP), and now a Professor of Public Management at John. F. Kennedy School of Government, believes contracting can no longer be considered primarily an administrative function. His thesis is supported by the fact that a high percentage of an agency's budget is spent on contracts for supplies and services. He recommends contracting management be considered a core competence within each federal organization. He believes critical responsibilities that accompany the job include performance measurement and management of the contractor.²¹

¹⁹ Wendell C. Lawther, *Contracting in the 21st Century: A Partnership Model* (Arlington, VA: PricewaterhouseCoopers Endowment for the Business of Government, 2002), 6. Professor Lawther's thesis is: the reform of federal procurement policy has resulted in increased flexibility for contracting officers, program managers, and related procurement personnel. The impact of these reforms on the function of contract administration has not been fully recognized.

²⁰ Federal Acquisition Regulation (FAR) 42.302 list 65 "normal contract administration functions" which Administrative Contracting Officers have the authority to automatically carry out.

²¹ Seven Kelman, "Remaking Federal Procurement: Visions of Governance in the 21st Century," Working Paper No. 3, May 2002., 2. Professor Kelman supports this point by the fact the DoD, Department of Energy (DoE), and the National Aeronautics and Space Administration (NASA) spend a significant amount of their budgets on contracted products and services—46%, 94% and 78% respectively.



The nature and extent of contract administration varies from contract to contract. It can vary from a minimum level of involvement in the contractor's activities to a maximum level of almost dictating the methods by which supplies and services are purchased. This is in contrast to the impact of total engagement.²² The depth of oversight has traditionally taken one of the following approaches. (See Figure 4.)

- Minimum oversight is associated with small-scale jobs, projects where the management and control is essentially left to the discretion of the supplier in the purchase of commercial items. The contractor is most often permitted to follow its own production, assembly, testing and quality process/procedures. For commercial items, inspection and testing by the government is completed in a manner consistent with accepted industry practices.
- The intermediate level of oversight occurs when the procurement is large in scale, or the supplies and equipment being procured are unique to the government. The buyer sometimes imposes extensive data collection and status reporting on the seller. However, in this situation, the seller's managing systems and techniques generally provide the buyer with the necessary performance-status information. When government unique standards are required, the contractor can also be required to follow government production, assembly and testing processes as a term and condition of the contract.
- The most intensive level involves large projects, research and development efforts or the acquisition of major systems. In this case, the supplier's internal management systems and processes may not be fully acceptable. Also in this case, the buyer often imposes process specifications or standards of performance upon the supplier. Often, the contractor is required to follow government production, assembly and testing processes as a term and condition of the contract.

²² John Cibinic, Jr. and Ralph C. Nash, Jr. *Administration of Government Contracts, Second Edition*, Government Contracts program, (Washington, D.C.: George Washington University, 1986), 2.



Level of Contractor Oversight by The Government

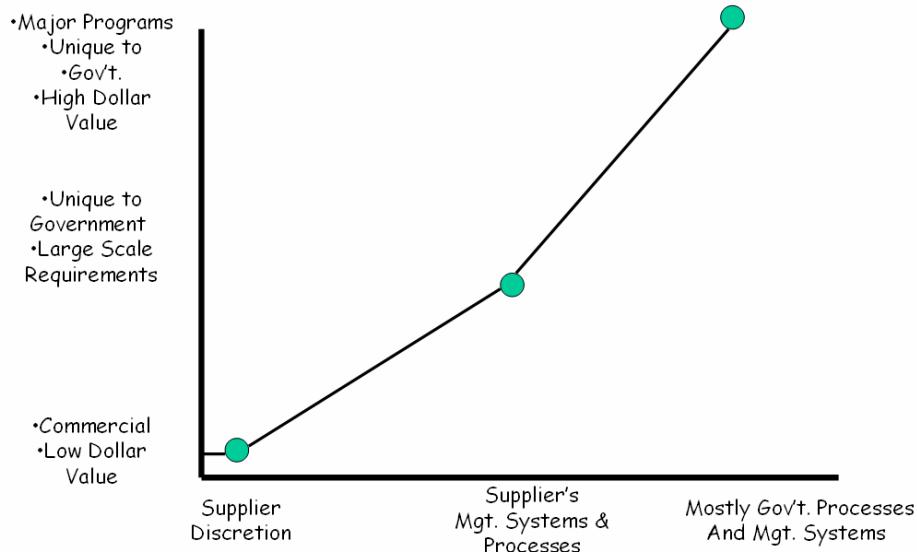


Figure 4. Level of Contractor Oversight by Government

An important responsibility of contracting personnel after contract award is evaluating a contractor's performance information on designated contracts on an annual basis, as well as at the time of completion of the contract.²³ The FAR then requires the source-selection authority to reconsider this record of past performance for future source-selection purposes. Knowledge of a contractor's record of contract performance is seen as a way to mitigate the risk of selecting a contractor with a poor track record.

Contractor performance reports are collected and maintained in a web-enabled library developed by Naval Sea Logistics Center for the DoD, commonly referred to as CPARS (Contractor Perform Assessment Reporting System). The type of information reported includes:

²³ DoD Deviation to FAR 42.1502 requires evaluations of contractor performance for each contract in excess of: (a) \$5,000,000 for systems and operational support, (b) \$1,000,000 for services, information technology contracts, and (c) \$100,000 for fuels and health care contracts.



- Contractor's record of conforming to contract requirements and standards of good workmanship,
- Contractor's record of forecasting and controlling cost,
- Contractor's adherence to contract schedules, including the administrative aspects of performance contractor's history of reasonable and cooperative behavior and commitment to customer satisfaction, and
- Contractor's business-like concern for the interests of the customer.

The study concludes that both parties would jointly benefit by managing these indicators concurrently throughout the life of the contract, rather than reporting on them after-the-fact.

The Cost of Oversight

Not gone unnoticed has been the premium paid by the government for the oversight methods and procedures used by the buyer to assure the timely delivery of the needed supplies, services and the confidence of the taxpayer. Between 1986 and 1992, at least six studies were made of the regulatory/oversight cost premium being passed on to the government buyer by contractors. Rough Order of Magnitude (ROM) estimates of the added cost premium cited in these reports ranged from 5 to 50 percent in potential cost reductions. The potential cost avoidance cited by all of these studies no doubt had an influence on FASA and other DoD acquisition policies before and after the Acquisition Streamlining Act in 1994. A more recent assessment of the DoD regulation and oversight burden, published by RAND in 2001, estimated the oversight burden to range from 1 to 6 percent.²⁴

²⁴ Mark Lorell, and John C. Graser, *An Overview of Acquisition reform Savings Estimates*, (MR-1329-AF) Project Air Force (Santa Monica, CA: RAND, 2001), 117-118. (Studies were performed by Honeywell in 1986 of contractor cost for 20 programs, RAND in 1988 of regulatory costs, Office of Technology Assessment in 1989 of total DoD acquisition budget, Center for Strategic and International Studies in 1991 of cost premium on identical items, Carnegie Commission in 1992 of total DoD acquisition budget; and American Defense Preparedness Association in 1992 of product cost.)



However, there has been recent criticism regarding how well the DoD oversees contractor performance. A recent example was a series of articles published in the *Federal Times* alleging that the number of auditors and inspectors had been cut back too far and the consequences were that the government was “being ripped-off.”²⁵

In response to this criticism, Professor Kelman pointed out oversight is not costless...that fixating on traditional oversight methods while ignoring other critical contract management tasks (such as establishing performance metrics, inciting contractor technical experts and government subject-matter experts to share information, and motivating both government and contractor personnel to achieve results) is not the answer.²⁶

What is Performance Measurement?

Performance is defined in the *Random House Webster's College Dictionary* as: “The execution or accomplishment of work, acts, feats, etc. [...] The act of performing. [It is] the manner in which, or efficiency with which something reacts or fulfills its intended purpose.”²⁷

Professors Lebas and Euske state performance is continuous and has a cause and effect. Performance exists only if outcome and results can be described or measured so as to be accurately communicated; only in this way can someone decide to do something within the shared model of causal relationships. Performance does not have the same meaning if the evaluator is inside, rather than outside the organization. Use of the term performance should be reserved for all processes that lead to a potential or future sequence of outcomes and results.²⁸

²⁵ “Blind Trust: Who is watching DoD contractors?” *Federal Times*, (April 5, 12 and 19, 2004)..

²⁶ Steve Kelman, “Oversight is not the only way to judge a procurement system,” *Federal Times*. (May 31 2004).

²⁷ *Random House Webster's College Dictionary*, (New York: Random House, 1994)” 1003.

²⁸ Lebas and Kenneth Euske, “Theoretical and conceptual issues,” *Business Performance Measurement: Theory and Practice*, ed. A.D. Neely (Cambridge, U.K.: Cambridge University Press, 2002).



The Government Accounting Standards Board views performance as a multidimensional concept consisting of outputs, quality and results.²⁹

Random House Webster's College Dictionary defines measurement as “the act of measuring [...] a dimension, extent, range, etc. or ascertained by measuring.”³⁰

In its simplest terms, performance measurement is the comparison of actual levels of performance to pre-established target levels of performance.³¹ (In the terminology of GPRA, this is comparing output to pre-established outcome objectives.)

Traditionally, performance measurement has been a key element of what management gurus have referred to as the “control function.” The objectives of performance measurement are:

assessing progress toward achieving predetermined goals, including information on the efficiency with which resources are transformed into goods and services (outputs), quality of those outputs (how well they are delivered to clients and the extent to which clients are satisfied) and outcomes (the results of a program activity compared to its intended purpose) and the effectiveness of government operations in terms of their specific contributions to program objectives.³²

In their book *The Business of Government: Strategy, Implementation and Results*, Thomas Kessler and Patricia Kelly recommend performance measures must be placed in any plan immediately after the statements of goals. This strategic location forces the planner to think critically to define applicable performance measures and tie

²⁹ Lawrence L. Martin, “Making Performance-Based Contracting Perform: What the Federal Government Can Learn from State and Local Governments,” *New Ways to Manage Series* (Arlington, VA: IBM Endowment for the Business of Government, November 2002), 13.

³⁰ *Random House Webster's College Dictionary* (New York: Random House, 1994), 840.

³¹ “Establishing and Maintaining a Performance-Based Management Program,” *The Performance-Based Management Handbook, Volume One*, Performance-Based Management Special Interest Group (PBM SIG), September 2001. <http://www.orau.gov/pbm>.

³² James B. Whittaker, *President's Management Agenda, A Balanced Scorecard Approach* (Vienna, VA: Management Concepts, 2003), 259.



them to each goal early in the planning process. The authors go further by stating, in order to be effective, a performance measure must include the following elements (See Table 2):

- Performance measures: Characteristics relative to the overall strategy, such as cost, cycle time, quality, and quantity.
- Performance indicators: Unit of measure as dollars, hours, errors per 1000, number of reports each period that can be used to measure output and outcome.
- Baseline: An initial starting measurement.
- Performance target: Desired level of performance expressed as a tangible, measurable objective against which achievement can be compared relative to a baseline measure.
- Tolerances: Acceptable ranges of variance from performance targets.³³

Elements of Performance Measurement

- Performance Measure:
 - A Measured Characteristic/s Relative to Overall Strategy
- Performance Indicators
 - Evaluation of Output or Outcome
- The baseline
 - Initial Starting Measurement
- Desired Level of Performance
 - Compared With Baseline
- Tolerances
 - Acceptable Range of Variances from Performance Target

Thomas G. Kessler, Patricia Kelly, *The Business of Government: Strategy, Implementation & Results*, Management Concepts, Vienna, VA. 2000, 86.

Table 2. Elements of a Performance Measure

³³ Thomas G. Kessler and Patricia Kelly, *The business of Government: Strategy, Implementation and Results* (Vienna, VA: Management Concepts, 2000), 86.



As anyone in public or private industry can attest, performance measurement does not stop when variances from planned performance have been identified. Leading-edge organizations seek to create an efficient and effective performance-management system. James Whitaker, author of *President's Management Agenda*, A *Balanced Scorecard Approach*, dictates managers must also:

use performance measurement information to effect positive change in organizational culture, systems, and processes by helping to set agreed-upon performance goals, allocating and prioritizing resources, informing managers to either confirm or change current policy or program directions to meet those goals, and sharing results of performance in pursuing those goals.

These actions are part of the performance management system.³⁴

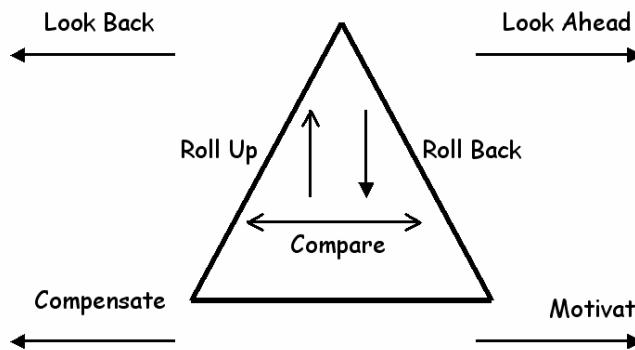
Professor Marshall Meyer of the University of Pennsylvania's Wharton School provides a schematic of how performance measures are used (See Figure 5). He contends performance measurement fulfills seven purposes. In addition to serving as a control metric, which he refers to as "Look back," performance metrics are also used to "Compensate," "Motivate" and "Look Ahead" to assess the future. Use of performance measures becomes even more significant as an organization increases in size. In larger organizations (the area within the triangle), metrics are reported up in the chain of command ("Roll[ed] up") so management can determine if the desired results have been achieved and can adjust goals or establish future goals accordingly. These are then "Roll[ed] Back" down the organization in the form of financial and non-financial objectives. Another value performance measurement this model provides is that it can

³⁴ Whittaker, 260.



also be used to “Compare” to other organizations across functional boundaries horizontally or to compare to other business units.³⁵

The Seven Purposes of Performance Measures



Marshall Meyer, *Rethinking Performance Measurement*, Cambridge University Press, UK, 2002, page 31

Figure 5. The Seven Purposes of Performance Measures

Some Examples of How DoD Now Uses Performance Measurement to Manage Contracts After Award

Award Fee Type of Pricing Arrangements: This type of contract provides a monetary base fee, plus an additional fee that is awarded periodically based on a subjective evaluation by the acquisition team of how well the contractor satisfied predetermined evaluation factors. Contractor's performance in such areas as responsiveness, quality, timeliness, management of risk and cost contract are examples of possible evaluation factors. Important to note, however, is the acquisition team can change its evaluation criteria at designated milestones during contract performance.

³⁵ Marshall W. Meyer, *Rethinking Performance Measurement: Beyond the Balanced Scorecard*, (Cambridge, U.K.: Cambridge University Press, 2002), 30.



A good example of how performance measurement can be used to evaluate contractor effectiveness can be found in the contractor-operated Arnold Engineering Development Center (AEDC) USAF. AEDC, whose mission is to support new aerospace systems by conducting R&D testing and to evaluate for the DoD and other government and commercial agencies, has been using competitively-awarded cost-plus-award fee-type pricing arrangements for over 25 years.

Temple Bowling IV, Senior Contracting Official at AEDC, feels the award fee feature has enabled the Air Force to use the profit motive to incentivize contractors to continually improve productivity and quality while controlling cost. On the current contract, in over eight award fee evaluation periods, AEDC tracked an average of 283 separate performance metrics. It should be noted that the importance the government placed on performance factors to be measured did not remain static. Between evaluation periods, on average 22% of the performance goals were adjusted; 28% of the metrics from the previous period were deleted; and an average of 18% new performance measures were added.³⁶

An advantage of this type of contract is that it improves communication between the two parties. A disadvantage to both parties is the fact that there is a substantial administrative burden associated with the evaluation and review of the award fee evaluation information.

Program Baseline Parameters: DoD 5000 series directives, which provide management principles and mandatory policies and procedures for managing all acquisition programs, require every program manager to establish goals for the minimum number of cost, schedule and performance parameters that describe the program over its life cycle.³⁷

³⁶ Data provided by Mr. Temple Bowling IV, Senior Center Contracting Official, AEDC/PK, February 2004.

³⁷ DoD Directive 5000.1, "The Defense Acquisition System," May 12, 2003, Paragraph 4.3.4.



These goals represent the key performance parameters which serve as the program baseline; this baseline is essentially a contract between the program manager, Defense Acquisition Executive and Service Acquisition Executive. The approved program baseline parameters then serve as control objectives in that the program manager must report on the status of approved baseline parameters to the acquisition executives; the status of those baselines is also key to a program's migration throughout the system's development.

Contracts for Performance-based Services: The contract is the common language between the buyer and seller and, therefore, it should lend itself to quantifiable measures of performance. A guide to best practices for writing Performance-Based Service Contracts (P-BSC) was published by the Office of Federal Procurement Policy (OFPP). This document applies the GPRA concept in its instructions on the preparation of performance-based work statements (P-BWS). The guide recommends describing the requirement in measurable performance standards. These standards should include such elements as "what, when, where, how many, and how well" the work is to be performed. This requires defining the required work in quantifiable terms with an acceptable error rate, which is referred to as an allowable quality level (AQL).³⁸

Aircraft Service Contracts: In describing the value of performance measures in the management of aircraft and facility maintenance service contracts, Ms. Cheryl Smith of Headquarters Air Mobility Command (AMC/LGCO) stated, "performance measures quantitatively tell us something important about the contractor's products, services and the processes that produce them, i.e., how well the contractor is doing, is the contractor meeting its goals, are customers satisfied, are the contractor's processes in statistical control, and if improvements are necessary, where are they needed?"³⁹

³⁸ *A Guide to Best Practices for Performance-Based Service Contracting*, Final Edition, Office of Federal Procurement Policy (OFPP), Office of Management and Budget (OMB), Executive Office of the Government, October 1998.

³⁹ Ms. Cheryl Smith, HQ AMC/LGCO, "Performance Measurement," Undated, Briefing, Scott, AFB, IL.



AMC best practices include: (a) relying on commercial-quality standards, (b) having the contractor propose metrics and a quality plan, (c) only measuring critical outcomes because excessive metrics can be costly, and (d) including language in the contract permitting the negotiation of changes to the measures.⁴⁰

Contractor Performance Evaluation Reporting: As noted earlier, contractor performance assessments reports are required and maintained in the CPARS database. Dollar thresholds by business sectors for reporting positive as well as negative performance information on DoD contracts are (See Table 3):

<u>Business Sector</u>	<u>Dollar Threshold</u>
Systems	\$5,000,000
Ship Repair/Overhaul	\$500,000
Services	\$1,000,000
Information Technology	\$1,000,000
Operations Support	\$5,000,000
Fuels	\$100,000

Table 3. COPARS Dollar Thresholds by Business Sectors

What Can Be Learned From Private Industry About Measuring Contractor Performance?

Measuring Supplier Performance: From literature research, one can conclude that private industry collects supplier-performance data primarily for strategic sourcing purposes and to determine how well the purchasing department as a whole is

⁴⁰ Ibid.



performing. The primary purpose is to use metrics at a macro level to judge performance of the procurement organization at the macro level.

Typical is a comment by Terry Sueltsman, Corporate Vice President of Purchasing and logistics, Sonoco Products. He believes purchasing and supply-chain management measures, to be effective, “must be more strategic, at a higher level to have a broad business impact and should lead change. Instead of talking of the price per part we use, talk about the impact on production cost.”⁴¹

The Center for Advanced Purchasing (CAPS) publishes a list of “Standard” Purchasing Performance Measures. The significance placed on the effectiveness of purchasing organizations in a macro sense can be judged by looking at the standards. Examples of the twenty-one CAPS standards are: purchasing operating expense dollars as a percent of sales dollars, percent change in total purchase dollars influenced/assisted by purchasing and the number of active suppliers accounting for 80% of purchase dollars, percent of total purchase dollars spent through reverse auctions, and percent of purchase dollars spent through strategic alliances.⁴²

What are the most important supplier characteristics? In February 2002, *The Journal of Supply Chain Management* published the results of a random sampling of the over 2,000 members of the Institute for Supply Management (ISM) members on formal supplier-evaluation programs. An analysis of the 299 responses was published as a report titled “Formal Supplier Evaluation Programs and the Factors Used to Channel Evaluations.” A summary of the responses showed the following.

- Less than half of the responding firms have formal supplier evaluation processes in place. (Formal supplier evaluations were aggregate evaluations of vendor performance rather than measuring ongoing outputs of a contract as part of contractor surveillance.)

⁴¹ Terry Sueltsman, “Supplier Performance Metrics That Really Make a Difference.” *Supplier Selection and Management Report* (September 2001) 11.

⁴² “CAPS ‘Standard’ Purchasing Performance Measures: Supplier Performance Metrics That Really Make a Difference” *Supplier Selection and Management Report*. (September 2001). 12.



- For those who have a formal rating system,
 - Two-thirds ranked supplier performance relative to one another.
 - Over half evaluated suppliers on a routine basis.
 - Twenty-one percent of the suppliers were asked to perform self-evaluations.
 - Less than one-third of the responses indicated they had a system for weighing categories of evaluation.
 - There were over thirty different supplier characteristics.⁴³ (Table 4 illustrates the Top Ten Categories.)

Top Ten Categories

CATEGORIES/(PERCENTAGE)	RELATIVE IMPORTANCE
- Quality and Process Control (24.9)	1
- Continuous Improvement (9.2)	2
- Facility Environment (8.2)	2
- Customer Relationship (8.2)	2
- Delivery (8.1)	2
- Inventory and Warehousing (7.0)	2
- Ordering (5.8)	2
- Financial Condition (5.5)	2
- Certifications- ISO (3.6)	3
- Price (3.6)	3

No Statistical Difference

Penny M. Simpson and Judy A. Siguaw, "Measuring the Performance of Suppliers: An Analysis of Evaluation Processes," *Journal of Supply Chain Management: A Global Review of Purchasing and Supply*, Institute of Supply Management, February 2002, Tables III and IV, pages 13 - 14

Table 4. Top Ten Categories

From this survey, one can conclude that, for the most part, commercial industry uses performance measurement primarily to evaluate the effectiveness and efficiency of its purchasing department. The lack of a formal supplier-evaluation program, like the DoD CPARS program, by less than half of those surveyed may be the result of the fact private industry is not subject to bid-protest rules as is the federal government.

⁴³ Penny M. Simpson, Judy A. Siguaw, and Susan C. White, "Measuring the Performance of Suppliers: An Analysis of Evaluation Processes," *Journal of Supply Chain Management: A Global Review of Purchasing and Supply Chain* 38, no. 1 (February 2002): 29.



How do Commercial Firms Measure Services? An analysis published by RAND on a study of “fourteen innovative commercial customers and world-class providers of facilities management services” provided insight into how these firms used performance metrics to execute sourcing activities and to help manage their relationships and promote continuous improvement.

The report concluded:

- Customer and provider jointly choose metrics.
 - The customer tended to track output-oriented metrics.
 - The service provider may also track process-oriented metrics.
- Both qualitative and quantitative measures were used.
- Both parties refined their set of metrics as the relationship evolved.
- Benchmarking studies were used to set feasible goals.
- Both formal and informal reviews were held to communicate performance.
- Both the generation of metrics and tracking of performance are costly.
- Most common characteristics of metrics used are:
 - Finance cost and customer satisfaction.
 - Qualitative metrics on performance of specific services.
- Special interests topics were also tracked.⁴⁴

(See Table 5: How Thirty Commercial Firms Measure Service.)

⁴⁴ Laura H. Baldwin, Frank Camm, and Nancy Moore, *Strategic Sourcing: Measuring and Managing Performance*, DB-287-AF (Santa Monica, CA: RAND, 2000).



How Thirty Commercial Firms Measure Services

- Customer-Provider Jointly Choose Metrics
 - Both Qualitative and Quantitative Metrics Used
 - Customers Tracked Output-Oriented Metrics
 - Provided Added Process Orientated Metrics
 - Facilitates Communication
 - Leading to More Responsive Service
 - Metrics Evolved Over Time of Contract
- Bench Marking Studies Used to Set Goals
 - Added Benefit
 - Justify Cost in Budget
 - Realign Workscope

Laura H. Baldwin, Frank Camm, and Nancy Moore, *Strategic Sourcing: Measuring and Managing Performance*, RAND DB-287-AF, Santa Monica, CA.. 2000, Appendix. (Study of Thirty Customers and Providers)

Table 5. How Thirty Commercial Firms Measure Services

Conclusion

Primary Research Question: Can Performance Measurement Be Used to Manage a Contractor's Performance? The Answer is Yes.

Performance measurement can be used to manage contractor's performance after award.

The Government Performance and Results Act (GPRA) of 1993 requires managers in the Executive Branch to develop strategic plans and to use performance indicators to record output and evaluate the outcome of each program. The Act establishes a management framework that includes:

- Development of strategic performance program plans with well-defined desired outcomes,
- Development of performance Indicators for desired outcomes,
- Definitions of outputs to track and measure results,



- Comparison of outputs to desired outcomes and,
- Documentation of report results. (Reference Figure 2. The GPRA Performance Accountability Framework)

This framework readily lends itself to the measurement of contractor performance and appears to be an appropriate way to manage contracts in the public sector.

Currently, an integral part of the contract administration (management) process is contractor-performance-evaluation reporting. However, such documentation is seen primarily as a way to mitigate the risk of selecting a contractor with a poor performance track record in the future. Examples of data that must be reported on a contractor's performance include: (a) Contractor's record of conforming to contract requirements and standards of good workmanship, (b) Contractor's record of forecasting and controlling cost, (c) Contractor's adherence to contract schedules, including the administrative aspects of performance, (d) Contractor's history of reasonable and cooperative behavior and commitment to customer satisfaction, and (e) Contractor's business-like concern for the interests of the customer. It appears the reported data could easily be tailored to fit the need of a performance-measurement process.

This study also notes Kaplan and Norton's Balanced Scorecard concept enables managers to visualize the breadth of an operation as well as to link measurements to strategy. As seen in Table 6 below, a visual depiction of The Balanced Scorecard Approach, the balanced scorecard methodology could be adapted to measure contractor performance in a manner that would enable the contract strategy, as well as critical success factors and desired outcomes, to be included in a contractor-performance measurement process.



A Balanced Scorecard Approach

CONTRACT PURPOSE AND OBJECTIVES				
Vision	Financial	Customer	Internal Processes	Innovation
Critical Success Factors	<ul style="list-style-type: none"> · Admin. · Cost · Cost Forecast-Control 	<ul style="list-style-type: none"> · Satisfaction · Cost · Quality · Timeliness 	<ul style="list-style-type: none"> · Integrity · Policy Goals · Business Relations · Key Pers. 	<ul style="list-style-type: none"> · Continuous Improve
Critical Measures	<ul style="list-style-type: none"> · Cycle Time · EVS <p>  FAR Vision  Past Performance </p>	<ul style="list-style-type: none"> · I&T Results · Schedule (EVS) · Feedback (Surveys) 	<ul style="list-style-type: none"> · Feedback (Surveys) 	<ul style="list-style-type: none"> · Results <p>  Both </p>

Table 6. The Balanced Scorecard Approach

The result would be to add joint accountability for results to the buyer-seller relationship.

It is also believed that both parties would jointly benefit from the enhancement of communications—communications that would no doubt result in the use of these indicators throughout the life of the contract rather than as a reporting mechanism after the fact.



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